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CLAIMS

1. A method for therapeutically treating a tetracycline resistant cell with tetracyclines, which comprises the steps of

administering to the cell a predetermined quantity of at least a first composition selected from the chemical group consisting of a blocking agent which is capable of interacting with a product of at least one tetracycline resistance determinant capable of protecting ribosomes in the cell from tetracycline's inhibitory activity; and

concomitantly administering to the cell a predetermined quantity of at least a second composition selected from the chemical group consisting of tetracycline, tetracycline analogues, and tetracycline derivatives which are not said blocking agent.

2. A method according to claim 1 wherein said blocking agent contains a sufficient part of tetracycline to interact with a product of at least one tetracycline resistance determinant capable of protecting ribosomes in the cell from tetracycline's inhibitory activity.

3. A method according to claim 1 wherein said first composition is present in a subinhibitory amount.

4. A method according to claim 1 wherein said tetracycline resistance determinant belongs to the Class A, B, K, L, M, O or Q tetracycline resistance determinant.

5. A method according to claim 1 wherein said blocking agent and said second composition are employed in a molar ratio of from about 0.01 to 100.

6. A method according to claim 1 wherein said blocking agent is also effective against a tetracycline efflux system.

7. A method according to claim I wherein said second composition is minocycline, doxycycline, methacycline, demeclocycline, oxytetracycline, or chlortetracycline.

8. A method for converting tetracycline resistant bacteria into tetracycline sensitive bacteria, comprising contacting the

resistant bacteria with a predetermined quantity of at least a first composition selected from C5 esters of tetracycline, 13,5 derivative or 6-deoxy-13-(substituted mercapto)tetracyclines, and concomitantly administering to the cell a predetermined quantity of at least a second composition selected from a tetracycline, a tetracycline analogue or a tetracycline derivative which is not a C5 ester of tetracycline nor a 6-deoxy-13-(substituted mercapto)tetracycline.

9. A method according to claim 8 wherein said first composition is a 6-deoxy-13-(alkyl substituted mercapto)tetracycline.

10. A method according to claim 8 wherein said first composition is a 6-deoxy-13-(aryl substituted mercapto)tetracycline.

11. A method according to claim 8 wherein said first composition is a C5 ester.

12. A method according to claim 8 wherein said first composition is a 13,5 derivative.

13. A method according to claim 8 wherein said second composition is tetracycline.

14. A method according to claim 8 wherein said second composition is minocycline, doxycycline, methacycline, demeclocycline, oxytetracycline, or chlortetracycline.

15. A pharmaceutical preparation for converting tetracycline resistant bacteria into tetracycline sensitive bacteria comprising a blocking agent which is capable of interacting with a product of at least one tetracycline resistance determinant capable of protecting ribosomes in the cell from the inhibitory activity of tetracycline, a tetracycline type antibiotic, and a pharmaceutical carrier.

16. A pharmaceutical preparation according to claim 15 wherein the tetracycline-type antibiotic is a tetracycline, a tetracycline analogue or a tetracycline derivative.

17. A pharmaceutical preparation according to claim 15 wherein said tetracycline resistance determinant belongs to the Class A, B, K, L, M, O or Q tetracycline resistance determinants.

18. A pharmaceutical preparation according to claim 15 wherein the tetracycline-type antibiotic is selected from minocycline, doxycycline, methacycline, demeclocycline, oxytetracycline, or chlortetracycline.

19. A pharmaceutical preparation for converting tetracycline resistant bacteria into tetracycline sensitive bacteria comprising a 6-deoxy-13(substituted mercapto)tetracycline, a tetracycline-type antibiotic which is not a 6-deoxy-13-(substituted mercapto)-tetracycline, and a pharmaceutically acceptable carrier.

20. A pharmaceutical preparation for converting tetracycline resistant bacteria into tetracycline sensitive bacteria comprising a C5 ester of tetracycline, a tetracycline-type antibiotic which is not a C5 ester of tetracycline, and a pharmaceutically acceptable carrier.

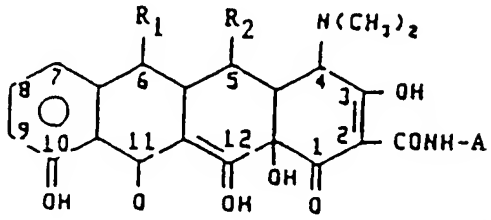
21. A pharmaceutical preparation for converting tetracycline resistant bacteria into tetracycline sensitive bacteria comprising a 13,5 derivative of tetracycline, a tetracycline-type antibiotic which is not a 13,5 derivative of tetracycline, and a pharmaceutically acceptable carrier.

22. A pharmaceutical preparation according to claim 15 wherein the tetracycline-type antibiotic is a tetracycline, a tetracycline analogue or a tetracycline derivative.

23. A pharmaceutical preparation according to claim 15 wherein the tetracycline-type antibiotic is selected from minocycline, doxycycline, methacycline, demeclocycline, oxytetracycline, or chlortetracycline.

24. A class of C5 esters of tetracycline compositions useful in combination with other classes of tetracyclines, tetracycline

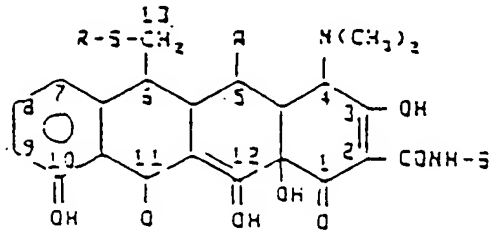
analogues and tetracycline derivatives, said class of compositions having the formula



wherein R1 and R2 are selected from the group consisting of a methylene group, hydroxyl, hydrogen or a group consisting of organic entities comprising from 1-12 carbon atoms, with or without other heteroatoms including sulfur, oxygen, halogen, nitrogen, and the like, and takes form as linear, branched, or cyclic alkyl, aryl, or alkylaryl structures; and A is selected from the group consisting of a hydrogen atom, a methylene group, and any linear, branched, or ring structure comprising from 1-6 carbon atoms and optionally including heteroatoms such as oxygen and nitrogen atoms.

25. The compositions of claim 24, wherein the compositions are selected from the group of Formula II, wherein R_1 is CH_3, H and R_2 is $COCH_2CH_3$, R_1 is =CH and R_2 is $COCH_2CH_3$, R_1 is $-CH_2$-S-cyclopentyl, H and R_2 is $COCH_2CH_3$, or R_1 is $-CH_2$-S-propyl and R_2 is $COCH_2CH_3$.

26. A class of 6-deoxy-13-(substituted mercapto) tetracyline compositions useful in the therapeutic treatment of a tetracycline resistant cell in combination with other classes of tetracyclines, tetracycline analogues and tetracycline derivatives, said class of compositions having the formula



wherein A is hydrogen or hydroxyl,

B comprises a morpholino group, and

R is an organic entity comprising 1-12 carbon atoms and optionally including heteratoms.

27. A tetracycline composition according to claim 26 having the formula